



Motivation to uphold physical activity in women with breast cancer during adjuvant chemotherapy treatment



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ABSTRACT

Purpose: Physical activity (PA) is important for recovery after a breast cancer diagnosis; however, women's motivation to engage in PA can be impacted by disease and/or treatment, and can therefore be a challenge. This study explored factors associated with PA levels during chemotherapy among women with breast cancer.

Method: The study had a cross-sectional descriptive and comparative design using a study-specific questionnaire. One hundred women with breast cancer receiving adjuvant chemotherapy were included. Data were analysed by Pearson's correlation coefficient and linear regression. The open question was subjected to manifest content analysis.

Results: Identified factors associated with engaging in PA during chemotherapy treatment were: being physically active before diagnosis, and the information given by the oncology nurse before the treatment start. The physically active women experienced higher psychological wellbeing, less fatigue, and faster recovery after treatment. They also experienced an overall feeling of fitness.

Conclusion: It seems that PA is associated with less fatigue, better recovery between chemotherapy treatments, and a better mental condition leading to wellbeing. Information given by the oncology nurse may be an important factor for being physically active. Women with breast cancer need to get specific advice about and support in engaging in PA to feel better during chemotherapy treatment. Further research is required to develop guidelines for advice about and support regarding PA during chemotherapy treatment.

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1. Introduction

Physical activity (PA) has significant health benefits and helps prevent illness, and is a fundamental means of improving people's physical and mental health (U.S. Department of Health and Human Services, 1996). Physical activity includes exercise as well as other activities, which involve bodily movement such as playing, walking, cycling, and household chores (World Health Organization, 2016). Evidence suggests that PA plays an important role for women diagnosed with breast cancer, in prevention (Kyu et al., 2016),

during cancer treatment, and for survival (Lahart et al., 2015). Breast cancer is the cancer form with the highest incidence among women in the world. In Sweden, approximately 9700 women were diagnosed with breast cancer in 2014 (The Swedish National Board of Health and Welfare, 2015).

Adjuvant cancer treatment that is given after surgery to reduce the risk of tumour recurrence and breast cancer mortality often consists of radiotherapy, chemotherapy and hormonal therapy depending on tumour stage and hormonal receptor status (Anampa et al., 2015; Gradishar et al., 2016). It is well known that chemotherapy treatment causes major symptoms and side effects for women, both physically and mentally. Common side effects are fatigue, mucositis, neutropenia and neuropathy with paresthesia and pain (Ho and Mackey, 2014; Mayer, 2013; Qin et al., 2011). These side effects can be very stressful for women, often impacting

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wellbeing, and can lead to an impaired quality of life (Hwang et al., 2013). Physical activity such as aerobic exercise during adjuvant treatment has been shown to have a positive effect on fatigue (Cramp and Byron-Daniel, 2012). One meta-analysis (Meneses-Echavez et al., 2015) has indicated that supervised aerobic exercise may be more effective than conventional care (with no exercise intervention) for improving cancer-related fatigue. There is also a significant benefit from participating in supervised exercise during active cancer treatment. Physical activity in the form of walking, cycling, resistance exercise, yoga and Qigong has also been found to have a positive effect on depression, anxiety and quality of life for women with breast cancer and it has been suggested that exercise interventions should be at a moderate to vigorous intensity to have the best impact (Mishra et al., 2012). Resistance exercise has been suggested to be included in supportive care for breast cancer patients during chemotherapy with the intention of mitigating physical fatigue and maintaining quality of life during chemotherapy treatment (Schmidt et al., 2015). Data show that participation in rehabilitation programmes including a combination of aerobic and resistance exercise has the most beneficial results on cardiorespiratory fitness, muscle strength, fatigue and chemotherapy completion rates (van Waart et al., 2015). During chemotherapy treatment, motivation and barriers to PA often change and it is hard for patients on active anti-cancer treatment to stay motivated due to symptoms and treatment side effects (Husebø et al., 2015; Kelly et al., 2015). Apart from receiving information on how to engage in PA during treatment, the individual's own motivation is of importance for adherence (Backman et al., 2016; Teixeira et al., 2012; Vassbakk-Brovold et al., 2017). The aim of this study was to explore factors associated with PA levels during chemotherapy among women with breast cancer.

2. Method

2.1. Design

The study used a cross-sectional descriptive and comparative design based on a study-specific questionnaire.

2.2. Setting and sample

The study was conducted at a Medical Treatment Unit for Oncology in Sweden where approximately 80 women with breast cancer are treated with adjuvant chemotherapy annually. The inclusion criteria were women over 18 years old with breast cancer stages I–III and receiving adjuvant chemotherapy. Exclusion criteria were inability to read and understand Swedish, cognitive dysfunction, or comorbidity. In total, 120 women were asked to participate by the nurse who administered the chemotherapy treatment. Twelve women declined participation and eight women did not return the questionnaire.

2.3. Data collection

Data were collected between February 2012 and August 2015. The study-specific questionnaire was developed by researchers who had experiences of oncology nursing (see Table 1), as there were no appropriate questionnaires, translated into Swedish, which would capture subjective experiences of being physically active during chemotherapy treatment. The questionnaire contains five demographic questions and nine questions focusing on PA and information about PA during chemotherapy treatment. The survey included an open-ended question where participants could freely express their experiences of their wellbeing or any concerns/issues. Before starting the study, a pilot version of the questionnaire was

tested by nurses ($n = 5$), members from a patient organization for women with breast cancer ($n = 4$) and women undergoing chemotherapy treatment at the clinic ($n = 4$). The test resulted in minor revisions of the wording of the questions. Women with breast cancer who consented to participate in the study received the questionnaire in conjunction with the chemotherapy treatment, at cycle three, four or five, from the nurse who administered the chemotherapy treatment. The participants could choose to fill in the questionnaire at the Medical Treatment Unit or at home, and had the possibility of bringing the questionnaire to their next treatment appointment or sending it by post. One reminder letter was sent if the questionnaire was not returned. Information on diagnosis, disease stage and chemotherapy regime was collected from the patients' medical records. During the data collection period there were no clinical guidelines in use for giving information about PA; however, the nurses commonly gave general information about the benefits of being physically active during treatment.

2.4. Data analysis

All quantitative data were entered into SPSS, version 22 (SPSS, Inc., Chicago, IL, US). Descriptive statistics were used to describe and classify the data. Physical activity sessions were assessed with a question about activity type. Questions were multiple-choice, where answer alternatives were transformed to approximate numbers of sessions per week based on the following assumption: one to two sessions per month = 0.35 sessions per week; three to four sessions per month = 0.81 sessions per week; one to two sessions per week = 1.5 sessions per week; three to four sessions per week = 3.5 sessions per week; five or more sessions per week = six sessions per week. All activity types (walking, Nordic walking = involves walking across country with the aid of long poles resembling ski poles, cycling, aerobics, and other) were merged into one single variable containing the number of PA sessions. Associations between PA sessions, and motives for and experiences of PA were analysed with Pearson's correlation coefficient (bivariate association) and linear regression (multivariate association).

The final, open-ended question (answers included a range from a few sentences to a whole page) was analysed by manifest content analysis (Graneheim and Lundman, 2004). The texts were read several times in order to obtain a sense of a whole. Data relevant for the aim of the study were identified, to form meaning units. These meaning units were coded based on the meaning of the text. Codes were then sorted into higher order headings regarding similarities and differences in relation to the content. In the following, quotations are used to illustrate the findings.

2.5. Ethical considerations

All the women received written information about the study. They were informed that participation was voluntary and that they were free to withdraw at any time without needing to give a reason. Written informed consent was obtained from all participants prior to their inclusion in the study. Questionnaires were coded and all material was treated confidentially. The study was approved by the Research Ethics Committee at Uppsala, Sweden (2012-01-11; Reg. No. 211/362).

3. Results

3.1. Sample characteristics

Sample characteristics are presented in Table 2. The mean age of

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